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BIOLOGICAL EVALUATION
Ponderosa Pine Limb Rust

Jacob Lake Ranger District
Kaibab National Forest
Arizona

1970

On September 25, in an area previously reported by Don Van Driel of the Jacob Lake Ranger District, a fungus disease, ponderosa pine limb rust, was diagnosed as the cause of branch death in four sawtimber-size trees and one sapling. Ponderosa pine limb rust is native to the Southwest. It is not considered a serious threat, and no direct control action is recommended. In this report, information is given on diagnosis of the disease. Also, the recommendation is made that diseased trees be harvested during intermediate cuts to prevent mortality loss.

Technical Information

Causal Agent - A rust fungus, Peridermium filamentosum

Host - Ponderosa Pine, Pinus ponderosa var. scopulorum

Diagnosis - The most obvious symptom is a well-defined zone of dead branches in the upper, middle, or lower crown. Recently-killed twigs or branches with brown foliage can usually be seen adjacent to the zone of dead branches. If these symptoms are present, the diagnosis can be completed by finding the spore sacs (aecia) of the fungus. The spore sacs are noticeable during June, July, and August on live twigs and branches near the zone of dead branches. Because other agents also kill branches, the diagnosis is not complete unless the spore sacs can be found.

Type of Damage - The disease kills branches beginning in the lower, middle, or upper crown. The zone of dead branches enlarges along the bole by about 18 inches each year, or half that rate in either direction. Growth is severely reduced after 50 percent of the crown is killed. Death occurs after 80-90 percent of the crown is killed.

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Environmental Factors - The proper conditions for infection do not occur often. The presence of the disease in old trees, but, for the most part, its absence in young trees, is evidence of this.

Extent of Outbreak - Several trees with limb rust symptoms were observed in the area surveyed. However, the deteriorated condition of the spore sacs and lack of time prevented a thorough survey. Spore sacs were found in four sawtimber-size trees and one sapling within one 5-acre area.

Location of Outbreak - See map attached.

Discussion

No control is known for limb rust. Because the disease kills slowly, mortality loss can be prevented if intermediate cuts are spaced about 20 years apart, and if the disease is recognized by timber markers. Any attempt to remove all infected trees would be futile, and probably would be of little or no value in stopping spread.

Recommendations

1. To prevent mortality loss, diseased trees should be harvested during intermediate cuts. In some cases, diseased trees may be needed to maintain stocking. If this is the case, those with less than 30 percent dead crown can probably be left until the next intermediate cut.

2. Diseased trees with less than 20 percent live crown should be salvaged, if possible.

3. The District should continue field surveillance for this disease during timber sale preparation. Only those trees with spore sacs should be considered diseased.

Prepared by:

Melvyn J. Weiss

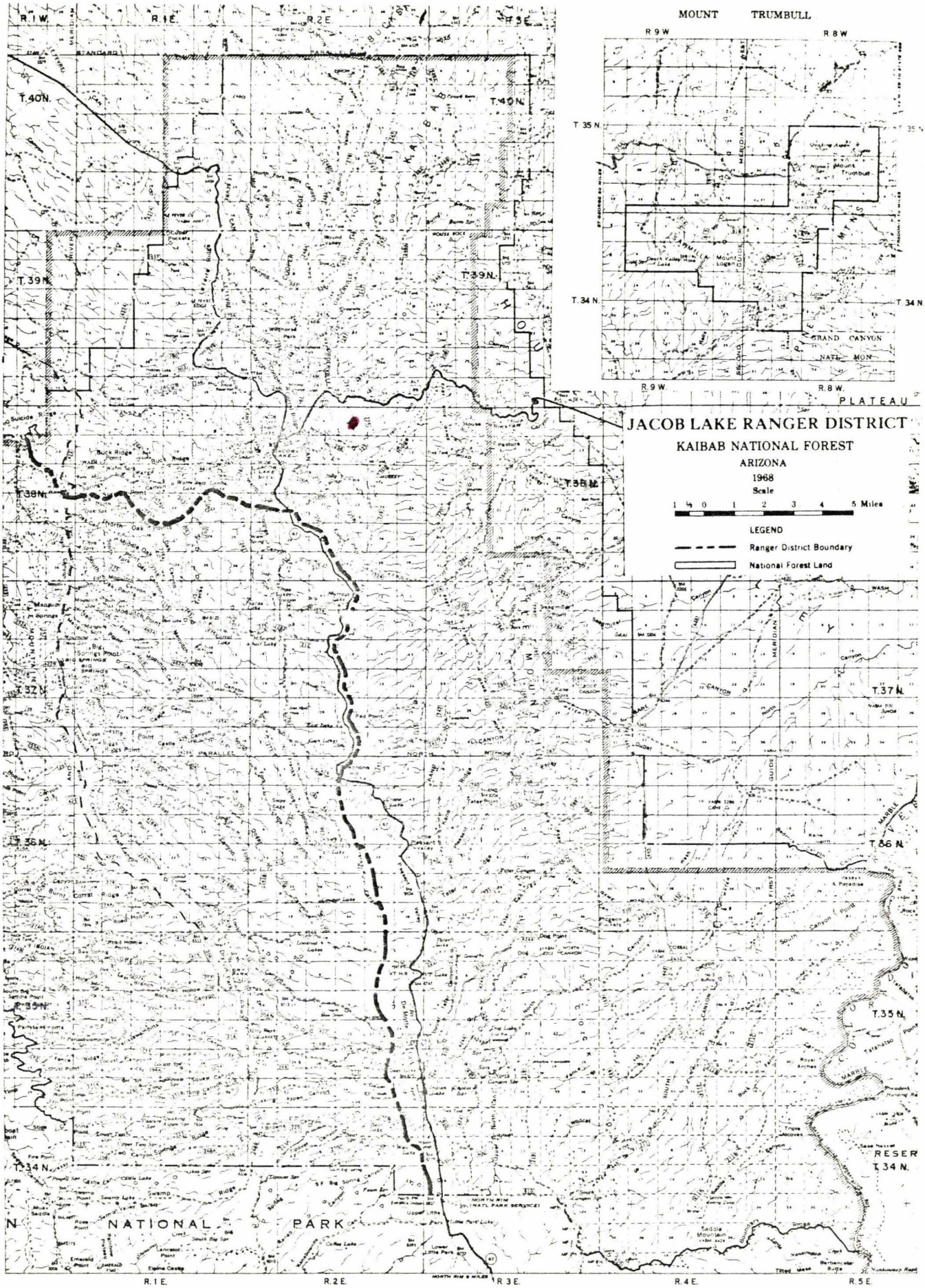
Melvyn J. Weiss, Plant Pathologist
Branch of Forest Pest Control

APPROVED BY:

F. M. Yasinski

F. M. Yasinski, Chief
Branch of Forest Pest Control

Mark M. Johannesen
Assistant Regional Forester



● PONDEROSA PINE LIMIS RUST 9/25/70

10-21-70

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Region 3
517 Gold Avenue, SW
Albuquerque, New Mexico 87101

REPLY TO: 5230 Evaluation

OCT 19 1970

SUBJECT: Ponderosa Pine Limb Rust - Jacob Lake Ranger District

TO: Forest Supervisor, Kaibab NF

Enclosed is a biological evaluation report prepared after Mel Weiss's September 25 trip to the Jacob Lake and Big Springs Ranger Districts. Enclosed also is a 35 mm. slide showing the aecia of the limb rust fungus, and a research paper, "Limb Rust Damage to Pine," by Roger S. Peterson.

Mel and Paul McCormick examined several ponderosa pine seedlings in the VT Plantation. The tip burn reported on the current year's needles was probably caused by a late spring freeze. Except for the tip burn, the needles appear to be very healthy.

F. M. Yasinski

for MARK M. JOHANNESEN
Assistant Regional Forester
Timber Management

Enclosures

cc: WO
WO Div. FI&DR (2)
RM, Ft. Collins
RM, Albuquerque
INT (Richard Krebill)
SA (3)
QBP Rudolfo Salinas Quinard,
Mexico